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(54) **MAGNETIC SEPARATION DEVICE FOR CELL SORTING AND ANALYSIS**

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(57) **ABSTRACT**

A magnetic sifter is adapted for manipulation of biological cells by providing a greater pore density at the edge of the sifter than at the center. Application of an external magnetic field to the sifter causes high magnetic fields and field gradients at the sifter pores. These conditions are suitable for capturing magnetically tagged or labeled cells at the sifter pores. Altering the external magnetic field can provide controlled capture and/or release of magnetically labeled cells from the sifter pores. The purpose of having a greater pore density at the periphery of the sifter than at the center is to provide improved flow rate uniformity through the sifter. Such flow rate uniformity is advantageous for cell quantification.